

AN AMERICAN SPECIES OF THE GENUS PACHY-
PAPPELLA BAKER (Hom. Aph.).

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The genus *Pachypappa* was erected in 1857 by Koch with *P. marsupialis* and *P. vesicalis* as types. In 1909, Tullgren described a third species, *P. lactea*, which he considered similar to the above from the descriptions given by Koch. Upon examination of *P. marsupialis* it was evident that it was incorrectly placed, therefore Dr. A. C. Baker in 1920 proposed the new name *Pachypappella* with *P. lactea* Tull. as type and relegated *Pachypappa* Koch to synonymy.

Recently Tullgren has published another paper in which he discusses this problem. He admits that it is possible that *P. marsupialis* Koch is not rightfully a *Pachypappa* and that his species *P. lactea* decidedly belongs to *Pachypappella*. He points out, however, that *P. vesicalis* is still unaccounted for and suggests that for it should be retained Koch's original name *Pachypappa* since it was one of the species for which the genus was erected. He describes this species and also a new one *P. grandis* which is closely related to *P. vesicalis*.

In the course of this article he discusses *Schiz. reaumuri* Kalt, which both Del Guercio and Theobald have placed in the genus *Pachypappa*. He submits evidence to prove that this species does not belong here.

It would appear, therefore, that if *Pachypappa* be recognized as a legitimate genus, it will have at least two species, *P. vesicalis* Koch and *P. grandis* Tull. and that the genus *Pachypappella* has also two species *P. lactea* Tull. and *P. caudelli* n. sp. A key follows to separate these species, based on the key in Tullgren's "Aphidol. Stud. II." and characters observed by the author on examination of slides of *P. vesicalis* Koch and *P. caudelli* n. sp. and Tullgren's descriptions of *vesicalis*, *grandis* and *lactea*.

APTERAE (FUNDATRIX).

Stem-mother without pores or wax plates.....*Pachypappa*
Stem-mother with pores and wax plates.....*Pachypappella*

ALATAE.

Without lateral rows of abdominal glands but with
dorsal pores and wax plates.....*Pachypappa*

With lateral rows of abdominal glands, dorsal pores and wax plates.....*Pachypappella*

From the slight generic differences recorded above, the wisdom of separating these species into two different genera appears to the author to be doubtful, but without access to original material and an intensive study of the literature, it is impossible at the present time to suggest any other solution.

Pachypappella caudelli n. sp.

This species, according to Tullgren's key and Baker's classification, is a true *Pachypappella*. It is an extremely common species in the interior of British Columbia on *Populus trichocarpa* and *P. tremuloides*. This species was taken during the summers of 1924 and 1925 by Mr. K. F. Auden of the University of Illinois and by the author, at Merritt, Penticton, and Bootahnie Valley. The first record of this species, however, is that of Mr. A. N. Caudell, of the U. S. National Museum, who collected it on *P. tremuloides* at Kalso, B. C., June 23, 1903. These specimens were kindly loaned by Dr. A. C. Baker of the U. S. Bureau of Entomology. The records then show a fairly wide distribution on the poplars of the lower slopes of the Cascades. There is no record of it ever having been taken in the Rocky Mountains or on the Pacific Coast, although the hosts have been well worked over in those districts.

The gall formed by this insect is very large and striking in appearance. The whole leaf is distorted into a globular shaped mass, in which, until about the end of June, is found a stem-mother and a large number of winged specimens, both immature and adult. The colony is closely attended by a species of ants which has been identified by Mr. E. R. Buckell of the Dominion Entomological Bureau as *Formica fusca* L. Only a small number of galls are found on each tree but all trees in the neighborhood are generally infested.

STEM-MOTHER.

General appearance:

The stem-mother is a large, globular object with a more or less shapeless appearance. It is quite inactive and often difficult to detect among the immature progeny and the folds of the inner surface of the gall. It appears a dull grey but is in reality a deep chocolate brown with a covering of white powder. No pores or wax plates can be detected on the un-

treated specimens. The whole body is covered with short, fairly stout, upright hairs, scattered evenly over the surface. No cornicles are present.

Cleared specimens:

When cleared the appendages and vertex of the head as well as 6 pairs of lateral pores, are dull brown in contrast to the transparent appearance of the rest of the body. When examined closely, a number of wax pore plates can also be detected. These are scattered in profusion over the head and more scantily over the thorax and abdomen. They fall apparently into 8 lateral rows except in the head where there is no indication of any order. The cauda is concolorous with the rest of the body and can scarcely be distinguished from it. On the distal half of the antennal segment III is a single oval sensorium.

Measurements:

The size of this form varies considerably with the individual galls, depending, it would appear, to a certain extent upon the time of the year in which they were taken. The measurements are given of a cleared specimen which was chosen because its length agrees with the average length of seven specimens which were examined.

Length—3.66 mm., width of widest part of abdomen—2.55 mm., width of widest part of head—.92 mm.; antennal segments—III—.19 mm., IV—.06 mm., V—.14 mm.; length of hind tibia—.61 mm., length of hind tarsi—.2 mm.; diameter of wax pore plates—.04 to .09 mm.—the larger ones seem to be closer to the lateral margins.

ALATE VIVIPAROUS FEMALE.

General appearance:

The whole body is covered with short, fairly numerous hairs. The thoracic plates, vertex of the head, and eyes are very dark; the rest of the body is lighter; the antennae and legs are concolorous with the abdomen; the cauda is slightly paler; the wing veins are very dark. The fore-wing has media once branched in most cases, radial, sector, stigma and first anal vein slightly shaded. In the hind wing the radial sector, media and cubitus are present and prominent. In some fifty specimens examined no definite trace of cornicles was found. These insects are large, striking in appearance and are found in very great numbers in the galls in early summer. They are sluggish in habit, not one having been induced into flight. The tarsi appear proportionately very long and the head broad and flat.

Cleared specimens:

The thorax appears very dark and the appendages and head vertex darker than the abdomen; the cauda is concolorous with the abdomen. No trace of cornicles can be detected. A row of 4-6 pores is present on either side of the body. These are similar in size and appearance to those seen in the stem-mother. On ant. seg. III are found 8-10 sensoria grouped as in figure; on segment IV usually two sensoria around the distal end; on segments V and VI one large sensorium also near the distal end.

Measurements:

These are all fairly uniform in size; the measurements given are an average of sixteen specimens. Total length of body—3.6 mm., width of abdomen—1.6 mm., width of head through eyes—.5 mm.; length of hind tibia—2.1 mm., length of hind tarsi—.31 mm.; length of fore wing—4.6 mm., length of hind wing—3.07 mm.; antennal segments, III—.3 mm., IV—1.6 mm., V—1.8 mm., VI—2.51 mm.

This species is undoubtedly closest to *P. lactea* but the differences can easily be seen by referenc to the key below.

Type slides of the species are deposited in the Canadian National Collection; paratypes in the U. S. National Collection and in the author's collection.

KEY TO DISTINGUISH DESCRIBED SPECIES OF PACHYPAPPA KOCH AND PACHYPAPPELLA BAK.

Apterae (Fundatrix).

- 1. Long, numerous hairs..... 2
Short, more scanty hairs..... 3
- 2. Antennal segment IV decidedly shorter than II. *P. vesicalis*
Antennal segment IV subequal to II.....*P. grandis*
- 3. Antennal segment III with no sensoria.....*P. lactea*
Antennal segment III with one large sensorium...*P. caudelli*

Alatae.

- 1. With more than 1 sensorium on antennal segment IV..... 2
With only one sensorium on antennal segment IV..... 4
- 2. With 8-12 subequal sensoria on ant. seg. II..... 3
With 10-14 sensoria, 1-2 smaller ones.....*P. vesicalis*
- 3. With 3-4 sensoria on ant. seg. IV.....*P. grandis*
With 1-2 sensoria on ant. seg. IV.....*P. caudelli*
- 4. With 4-6 sensoria on ant. seg. III.....*P. lactea*

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1905. Del Guercio, Redia II, p. 306.
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1915. Theobald, F., Entomologist, 48, p. 73.
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EXPLANATION OF PLATE.

1. Fundatrix, *Pachypappella caudelli*.
2. Antenna of alate female, *Pachypappella lactea* Tull.
3. Antenna of alate female, *Pachypappa grandis* Tull.
4. Antenna of alate female, *Pachypappa vesicalis* Koch.
5. Antenna of apterous female, *Pachypappella caudelli*.
6. Hind wing of *Pachypappella caudelli*.
7. Fore wing of *Pachypappella caudelli*.
8. Antenna of alate female, *Pachypappella caudelli*.